UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/646,899	10/10/2000	Tomoko Maeda	197679US0PCT	6173

22850 7590 07/22/2003

OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER
AFREMOVA, VERA

ART UNIT	PAPER NUMBER
1651	13

DATE MAILED: 07/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/646,899	Applicant(s) Maeda et al.
	Examiner Vera Afremova	Art Unit 1651

-- Th MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *May 16, 2003* .

2a) ☒ This action is **FINAL.** 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *20-41* is/are pending in the application.

4a) Of the above, claim(s) *25 and 37-41* is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *20-24 and 26-36* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☒ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
4) ☐ Interview Summary (PTO-413) Paper No(s). _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Restriction/Election

Applicants' election with traverse of the Group I invention (new claims 20-24), drawn to a method for producing osteoclast precursor cells, in the Paper No. 12 filed 5/16/2003 is acknowledged. The traversal is on the ground(s) that no undue burden would be imposed in the examination of all groups. This is not found persuasive for the reasons of lack of unity as explained in the prior office actions. Therefore, the requirement is still deemed proper and is therefore made FINAL.

The elected Group I new claims 20-24 are rejoined with the Group III new claims 26-36 as drawn to the subject matter examined in the office action mailed 9/06/2002 [Paper No. 7].

New claims 25 and 37-41 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to nonelected inventions, there being no allowable generic or linking claim. Applicant timely traversed the restriction requirement in Paper No. 12.

New claims 20-24 and 26-36 are under examination in the instant office action.

Claim Objections

Claims 20 and 22-24 are objected to because of the following informalities:

It is uncertain whether omission of hyphen in the phrase "hematopoietic stem cell derived cell obtained from" is a typing error or it is intentional. It is suggested to use the spelling identical to definitions (page 5, line 11). The other suggestion is the use of terminology from the exemplified disclosure, for example: "mononuclear cells" from peripheral blood (page 9, line 6)

and "a cellular fraction containing granulocytes and lymphocytes" from joint fluid (page 12,lines 13-14).

Appropriate correction is required.

Claim Rejections - 35 USC § 112

New matter

Claims 20-24 and 26-36 are rejected under 35 U.S.C. 112, *first paragraph,* as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Insertion of the limitation "at least" 1 to 3 weeks has no support in the as-filed specification. The presently claimed phrase can be interpreted to mean a time period from 1-3 weeks to eternity. The as-filed specification clearly states that the time period is 1-3 weeks (page 6, line 10) which means minimum 1 week and maximum 3 weeks. Thus, the insertion of the limitation "at least" 1 to 3 weeks is a new concept because it neither has literal support in the as-filed specification by way of generic disclosure, nor are there specific examples of the newly limited genus which would show possession of the concept of the use of "at least" 1 to 3 weeks for producing osteoclast precursor cells. This is a matter of written description, not a question of what one of skill in the art would or would not have known. The material within the four corners of the as-filed specification must lead to the generic concept. If it does not, the material is new matter. Declarations and new references cannot demonstrate the possession of a concept after the

fact. Thus, the insertion of the phrase "at least" before the phrase "1 to 3 weeks" is considered to be the insertion of new matter for the above reasons.

Indefinite

Claims 20-24 and 26-36 are rejected under 35 U.S.C. 112, *second paragraph,* as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 24 is rendered indefinite by the phrase "at least" before the phrase 1-3 weeks because it fails to point out the intended time period for obtaining osteoclast precursor cells particularly in view that this time period involve death of undesired cell in the mixed cell population as disclosed (page 6, line 10).

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

New claims 20-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Purton et al. [U].

Claims are directed to a method for isolating osteoclast precursor cells wherein the method comprises culturing peripheral blood derived cells in essential medium for mammalian cells in the absence of cytokines for 1-3 weeks.

Purton et al. [U] disclose a method for isolating osteoclast precursor cells wherein the method comprises culturing peripheral blood derived mononuclear cells at standard culture

conditions in the essential medium for mammalian cells such as MEM in the absence of cytokines for up to 21 days or for 1-3 weeks. Thus, the method of the cited reference comprises identical step and identical structural elements as the claimed method. Therefore the cited reference anticipates the claimed invention.

The rejection of claims under 35 U.S.C. 102(e) as being anticipated by US 5,830,682 [A] has been withdrawn because the method of the cited patent is drawn to the use of a different starting cell population such as bone marrow derived cells.

The rejection of claims under 35 U.S.C. 102(b) as being anticipated by Matayoshi et al. [V] has been withdrawn because the method of the cited reference does not comprises step of culturing peripheral blood mononuclear cells in the absence of cytokines for 1-3 weeks before addition of cytokines.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

New claims 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Purton et al. [U] taken with US 5,830,682 [A], Matayoshi et al. [V], US 5,879,940 [B] and Dahl et al. [V-1].

Claims are directed to a method for isolating osteoclast precursor cells wherein the method comprises culturing peripheral blood derived cells in essential medium for mammalian cells in the absence of cytokines for 1-3 weeks. Some claims are further drawn to the use of

standard culture conditions such as 35-37°C in 5% CO2. Some claims are further drawn to culturing joint fluid derived cells as a source of hematopoietic stem cells.

The cited reference by Purton et al. [U] is relied upon as explained above for the disclosure of the method for producing osteoclast precursor cells derived from peripheral blood. The cited reference is silent with regard to the culture conditions. However, the claimed culture conditions such as 35-37°C in 5% CO2 are regular conditions for culturing animal cells including osteoclast precursor cells as adequately demonstrated by US 5,830,682 [A], for example: col. 16, line 44.

The cited reference by Purton et al. [U] is drawn to the use of stem cells of a hematopoietic lineage as a starting population in the method for producing osteoclast precursor cells. But is it missing disclosure related to the use of additional source of osteoclast precursor cells such as joint fluid.

However, US 5,879,940 [B] teaches that stem cells of a hematopoietic lineage can be isolated from various sources including peripheral blood, bone marrow, umbilical cord and other sources (col. 4, lines 54-57). The reference by Matayoshi et al. [V] teaches that osteoclasts are derived from pluripotent precursors of the monocyte macrophage lineage (page 10785, col. 1, par. 1). Further, the reference by Dahl et al. [V-1] is relied upon for the teaching that synovial tissue or joint fluid derived from patient with rheumatoid arthritis contains substantial amounts of cells of hematopoietic lineage including cells of macrophage nature (abstract).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the claimed invention was made to use synovial tissue or joint fluid derived from patient with rheumatoid arthritis as the source of cells of hematopoietic lineage including cells of macrophage nature as taught by Dahl et al. [V-1] with a reasonable expectation of success in obtaining cells of macrophage nature including osteoclast precursor cells because cells of macrophage nature and/or osteoclast precursor derive from the same pluripotent precursor cells as taught by Matayoshi et al. [V]. Although the main source of stem cells is a bone marrow, one of skill in the art would have been motivated to use the other source which might contains fewer precursors cells but is generally easier to obtain than bone marrow as taught by US 5, 879,940 (col. 6, lines 5-7). The presently claimed starting population such as peripheral blood and joint fluids are generally easier to obtain than bone marrow. Thus, the claimed invention as a whole was clearly prima facie obvious, especially in the absence of evidence to the contrary.

The claimed subject matter fails to patentably distinguish over the state art as represented be the cited references. Therefore, the claims are properly rejected under 35 USC § 103.

The subject matter of claims 26-36, drawn to a method for producing osteoclast by a specific sequence of active steps of cell culturing in the absence and in the presence of cytokines, appears to be free from the prior art cited in the last and in the instant office actions.

Claims 26-36 would be allowable if rewritten to overcome the claim objections and claim rejection(s) under 35 U.S.C. 112, 1 and 2 paragraphs, set forth in this Office action and to include all of the limitations of the base claim 20 and any intervening claims.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vera Afremova whose telephone number is (703) 308-9351. The examiner can normally be reached on Monday to Friday from 9:00 to 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Wityshyn, can be reached on (703) 308-4743. The fax phone number for this Group is (703) 308-4242.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0196.

Vera Afremova,

Art Unit 1651

July 17, 2003.

SANDRA E. SAUCIER
PRIMARY EXAMINER